

**CLAIMS**

1. A method of voice communication concerning a local entity wherein:
  - 5 (a) the local entity has an associated voice service hosted on a separate server connected to a communications infrastructure;
  - (b) with a user near the local entity, contact data relating to the user is transferred to a receiving device that is located at or near the local entity and is connected to the communications infrastructure;
  - 10 (c) the contact data received by the receiving device is used to establish communication through the communications infrastructure between the voice service and equipment carried by the user that is in wireless connection with the communications infrastructure;
  - (d) the user interacts with the voice service with the latter acting as voice proxy for the  
15 local entity.
2. A method according to claim 1, wherein the contact data is a data connection address for the user's equipment.
- 20 3. A method according to claim 1, wherein the contact data is a telephone number of telephone functionality incorporated into the user's equipment.
4. A method according to claim 1, wherein the contact data is user-specific data for translation by an element of the communications infrastructure into an access number or  
25 address of the user's equipment.
5. A method according to claim 1, wherein in step (d) the user and voice service interact through spoken dialog with both voice input by the user and voice output by the service.
- 30 6. A method according to claim 5, wherein in said dialog the entity is represented in first person terms through the voice service.

7. A method according to claim 1, wherein step (d) involves voice input by the user and voice output by the service with voice input and voice output being effected by sound input and output devices forming part of the user's equipment.

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8. A method according to claim 1, wherein step (d) involves voice input by the user and voice output by the service, voice output being effected using a sound output device forming part of the user's equipment, and voice input being through at least one local sound input device that is associated with the locality of the entity rather than with the user  
10 and is connected with the voice service through the communications infrastructure independently of the user's equipment.

9. A method according to claim 1, wherein step (d) involves voice input by the user and voice output by the service, voice input being effected using a sound input device forming  
15 part of the user's equipment, and voice output being through at least one local sound output device that is associated with the locality of the entity rather than with the user and is connected with the voice service through a communications infrastructure independently of the user's equipment.

20 10. A method according to claim 1 or claim 5, wherein sound output is through multiple sound output devices controlled so that the sound appears to be originating from said local entity.

11. A method according to claim 10, wherein said multiple sound output devices are  
25 headphones worn by the user, the location of the voice service sound output in the audio field generated by the headphones being controlled to take account of the relative positions of the user and entity and rotations of the user's head.

12. A method according to claim 10, wherein said multiple sound output devices are  
30 loudspeakers associated with the locality of the entity rather than with the user and connected with the voice service through the communications infrastructure independently

of the user's equipment, the sound output from the loudspeakers being controlled in dependence on the relative positions of the user and entity.

13. A method according to claim 1, wherein the voice service is effected by the serving of  
5 voice pages in the form of text with embedded voice markup tags to a voice browser, the voice browser interpreting these pages and carrying out speech recognition of user voice input, text to speech conversion to generate voice output, and dialog management; the voice browser being disposed between a voice page server and the user.

10 14. A method according to claim 13, wherein the user-related contact data serves to identify the user and is passed in step (c) directly or indirectly to the voice browser which uses the contact data to look up an access number or address for the user's equipment.

15 15. A method according to claim 1, wherein the user equipment includes a mobile phone, step (c) involving placing the voice service and mobile phone in communication.

16. A method according to claim 1, wherein:  
- the voice service is effected by the serving of voice pages in the form of text with  
embedded voice markup tags to a voice browser, the voice browser interpreting these  
20 pages and carrying out speech recognition of user voice input, text to speech conversion to generate voice output, and dialog management; the voice browser being disposed between a voice page server and the user; and  
- the user equipment includes a mobile phone, step (c) involving placing the voice service and mobile phone in communication.

25 17. A method according to claim 16, wherein the voice browser is not part of the user's equipment and in step (c) the contact data, in the form of information for contacting the user's equipment, is passed directly to the voice browser together with a URL of the voice service, the voice browser contacting the user on the mobile phone using a voice circuit or  
30 data connection that is then used in step (d) for voice input and/or output between the user and voice browser.

18. A method according to claim 16, wherein the voice browser is not part of the user's equipment and the contact data comprises user-specific information which the voice browser can use to derive information for contacting the user's equipment, step (c) involving sending the user-specific information to the voice browser together with a URL  
5 of the voice service, the voice browser contacting the user on the mobile phone using a voice circuit or data connection that is then used in step (d) for voice input and/or output between the user and voice browser.
19. A method according to claim 16, wherein the voice browser is not part of the user's  
10 equipment and in step (c) the user-related contact data is passed to the voice page server which is then responsible for passing the contact data to the voice browser, the voice browser using this contact data to contact the user on the mobile phone using a voice circuit or data connection that is then used in step (d) for voice input and/or output between  
15 the user and voice browser.
20. A method according to claim 16, wherein the voice browser is part of the user's equipment and in step (c) the user-related contact data is passed to the voice page server which then connects with the user equipment via a data-capable bearer service of the communications infrastructure, the data-capable bearer service being subsequently used in  
20 step (d) for passing text based input and/or output between the voice browser and voice page server.
21. A method according to claim 1, wherein the wireless network is a proprietary-space  
25 local network hosting the voice service, the local entity being located in the proprietary-space concerned.
22. A method according to claim 21, wherein the user equipment includes a wireless headset which in step (d) is used for exchanging voice input and output with the voice service.

**23.** A method according to claim 1, wherein in step (b) the identity of the user is sent to the voice service and used by the latter to look up user profile data which is then used to customise the voice service to the user.

5 **24.** A method according to claim 1, wherein the user on being placed in contact with the voice service in step (c) is joined into a session with any other users currently using the voice service in respect of the same local entity such that all users at least hear the voice output of the voice service.

10 **25.** A method according to claim 24, wherein voice input from a user is not broadcast to other users joined in the same session unless that input is selected for handling by the voice service.

15 **26.** A method according to claim 1, wherein the user on being placed in contact with the voice service in step (b) is joined into a session with any other users currently using the voice service in respect of the same local entity and other entities that have been logically associated with that entity, the voice inputs and outputs to and from the voice service being made available to all such users.

20 **27.** A method according to claim 1, wherein the receiving device includes parameter values relating to the state of said local entity in said contact data, these parameter values being passed in step (c) over the communications infrastructure to the voice service where they are used in conditioning the output of the voice service.

25 **28.** A method according to claim 1, wherein the local entity has associated functionality that is controlled by control data passed from the voice service via the communications infrastructure to said functionality.

30 **29.** A method according to claim 28, wherein the local entity has an associated mouth-like feature movable by said functionality, the control data from the voice service being used to cause operation of the mouth-like feature in synchronism with voice output from the voice service.

30. A method according to claim 29, wherein the mouth-like feature is incorporated into the receiving device.

5 31. A method according to claim 1, wherein the voice service provided to a user is dependent on the user's position relative to the entity.

32. A method according to claim 1, wherein the voice service provided to a user is dependent on the user's orientation relative to the entity.

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33. A method according to claim 1, wherein the voice service provided to a user is dependent on the user's line of approach relative to the entity.

34. A method according to claim 33, wherein multiple receiving devices are associated  
15 with the entity, the contact data of the receiving device first or most-recently picking up the user-related contact data determining the voice service being provided to the user in respect of that entity.

35. A system for enabling verbal communication on behalf of a local entity with a nearby  
20 user, the system comprising:

- user equipment, intended to be carried by a user, comprising a wireless communication subsystem, audio output means, and contact-data transfer means for transmitting contact data identifying a voice service associated with the entity but separately hosted;
- 25 - a communications infrastructure comprising at least a wireless network with which the wireless communication subsystem of the user equipment can communicate;
- a contact-data receiving device located at or near the local entity and operative to receive contact data from the contact-data transfer means of the user equipment when the user is close to the local entity, the receiving device being connected to the communications infrastructure independently of the user equipment and being further  
30 operative to pass received contact data to the voice service associated with the entity; and

- a voice service arrangement for providing said voice service, the voice service arrangement being connected to said communications infrastructure to receive said contact data from the contact-data receiving device and to thereupon to act as voice proxy for the local entity by providing voice output signals over the communications infrastructure to the audio output means.

36. A system according to claim 35, wherein the contact data is a data connection address for the user's equipment.

37. A system according to claim 35, wherein the contact data is a telephone number of telephone functionality incorporated into the user's equipment.

38. A system according to claim 35, wherein the contact data is user-specific data for translation by an element of the communications infrastructure into an access number or address of the user's equipment.

39. A system according to claim 35, further comprising audio input means forming part of the user's equipment, the audio input and output means together enabling a user to interact with the voice service through spoken dialog with voice input by the user through the audio input means and voice output to the user through the audio output means.

40. A system according to claim 39, wherein in said dialog the entity is represented in first person terms through the voice service.

41. A system according to claim 35, wherein said audio output means are headphones worn by the user, the location of the voice service sound output in the audio field generated by the headphones being controlled to take account of the relative positions of the user and entity and rotations of the user's head. such that the sound output appears to be originating from said local entity.

42. A system according to claim 39, wherein the voice service arrangement comprises:

- a voice page server for serving voice pages in the form of text with embedded voice markup tags; and
  - a voice browser comprising:
    - 5       - a speech recognizer for carrying out speech recognition of user voice input received as voice signals;
    - a dialog manager for effecting dialog control on the basis of output from the speech recognizer and pages served by the voice page server; and
    - a text-to-speech converter operative to convert voice pages into voice output
- 10       signals under the control of the dialog manager.

43. A system according to claim 42, wherein the user-related contact data serves to identify the user, the receiving device being arranged to pass this contact data directly or indirectly over the communications infrastructure to the voice browser the latter being

15       operative to use the contact data to look up an access number or address for the user's equipment.

44. A system according to claim 42, wherein the user equipment comprises a mobile phone providing the said wireless communication subsystem and said audio input and

20       output devices.

45. A system according to claim 44, wherein the voice browser is not part of the user's equipment and the contact data comprises information for contacting the user's equipment, the receiving device being operative to pass the contact data to the voice browser together

25       with a URL of the voice service, the voice browser being responsive to receiving the contact data to contact the mobile phone using a voice circuit or data connection that is then used for voice input and output between the user and voice browser.

46. A system according to claim 44, wherein the voice browser is not part of the user's

30       equipment and the contact data comprises user-specific information, the receiving device being operative to pass the contact data to the voice browser together with a URL of the voice service, the voice browser being responsive to receiving the contact data to use it to



use to derive information for contacting the user's equipment, the voice browser being operative to use this derived information to contact the mobile phone using a voice circuit or data connection that is then used for voice input and output between the user and voice browser.

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47. A system according to claim 44, wherein the voice browser is not part of the user's equipment, the receiving device being operative to pass the user-related contact data to the voice page server, the voice page server being responsive to receipt of the contact data to pass it to the voice browser and the browser being operative to use this contact data to  
10 contact the mobile phone using a voice circuit or data connection that is then used for voice input and output between the user and voice browser.

48. A system according to claim 44, wherein the voice browser is part of the user's equipment, the receiving device being arranged to pass the user-related contact data to the  
15 voice page server, the voice page server being operative on receipt of the contact data to connect with the user equipment via a data-capable bearer service of the communications infrastructure, the user equipment and voice page server being arranged to use the data-capable bearer service for passing text based input and/or output between the voice browser and voice page server.

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49. A system according to claim 35, wherein the wireless network is a proprietary-space local network hosting the voice service arrangement, the local entity being located in the proprietary-space concerned.

25 50. A system according to claim 39, wherein the wireless network is a proprietary-space local network hosting the voice service arrangement, the local entity being located in the proprietary-space concerned.

51. A system according to claim 50, wherein said audio output means comprises  
30 headphones worn by the user, the location of the voice service sound output in the audio field generated by the headphones being controlled to take account of the relative positions of the user and entity and rotations of the user's head such that the sound output appears to

be originating from said local entity.

52. A system according to claim 35, wherein the voice service arrangement is operative to connect a user newly contacting the voice service associated with said entity, into a session  
5 with any other users currently using the voice service in respect of the same local entity such that all users at least hear the voice output of the voice service.

53. A system according to claim 52, wherein the voice service arrangement is so arranged that voice input from a user is not broadcast to other users joined in the same session  
10 unless that input is selected for handling by the voice service.

54. A system according to claim 35, wherein the voice service arrangement is operative to connect a user newly contacting the voice service into a session with any other users currently using the voice service in respect of the same local entity and other entities that  
15 have been logically associated with that entity, the voice inputs and outputs to and from the voice service being made available to all such users.

55. A system according to claim 2, wherein the receiving device is operative to include parameter values relating to the state of said local entity in said contact data, the voice  
20 service arrangement being operative to use these parameter values to condition the output of the voice service.

56. A system according to claim 35, wherein the local entity has associated functionality arranged to be controlled by control data passed to it from the voice service via the  
25 communications infrastructure.

57. A system according to claim 56, wherein the local entity has an associated mouth-like feature movable by said functionality in dependence on the control data from the voice service whereby to cause operation of the mouth-like feature in synchronism with voice  
30 output from the voice service.

58. A system according to claim 35, further comprising means for sensing the position of

the user relative to the entity, and means for passing corresponding position data to the voice service, the voice service being operative to condition its output in dependence on the user's sensed position.

- 5   **59.** A system according to claim 35, further comprising means for sensing the orientation of the user relative to the entity, and means for passing corresponding orientation data to the voice service, the voice service being operative to condition its output in dependence on the user's sensed orientation.
- 10   **60.** A system according to claim 35, further comprising means for sensing the line of approach of the user relative to the entity, and means for passing corresponding line-of-approach data to the voice service, the voice service being operative to condition its output in dependence on the user's line of approach.
- 15   **61.** A system according to claim 35, wherein multiple receiving devices are associated with the entity, the contact data of the receiving device first or most recently received by the voice service arrangement determining the voice service to be provided to the user in respect of that entity.